WE CLAIM:

1   1. A method of manufacturing a disk drive formed from a head disk

2   assembly (HDA) containing at least one magnetic disk with a magnetic surface

3   and a head stack assembly (HSA) that includes a transducer head with a write

4   element for writing data to the magnetic disk and a read element for reading data

5   from the magnetic disk, the method comprising the steps of:

6   mounting the HDA in a servo track writer and moving the HSA to

7   desired positions over the magnetic disk;

8   measuring a width of the read element with the servo track writer;

9   measuring a width of the write element with the servo track writer;

10   determining a track pitch based on the measured width of the read

11   element and the measured width of the write element; and

12   writing servo tracks onto the magnetic disk at the determined track

13   pitch.

1   2. The method of Claim 1 wherein the HDA carries a controller

2   card having a microprocessor that is placed in communication with the STW

3   when the HDA is mounted in the STW and wherein the microprocessor

4   participates in the steps of measuring the widths of the read and write elements

1   3. The method of Claim 1 wherein the HDA is a bare HDA and

2   wherein the STW includes independent processing capability for performing the

3   steps of measuring the widths of the read and write elements.

1   4. The method of Claim 1 wherein the HDA contains a plurality of

2   magnetic surfaces and corresponding transducer heads, wherein the measuring

3   steps are performed for each transducer head to establish a collection of width

4   measurements; and wherein the determining steps is accomplished based on

5   the collection of width measurements.

1   5. The method of Claim 1 wherein the steps of measuring the

2   width of the read element and the width of the write element are accomplished

3   by:

4   writing a calibration track with the write element;

5   positioning the read element to a first side of the calibration track;

6   gathering amplitude data by incrementally moving the read element

7   from the first side of the calibration track to a second

8   opposite side while reading data at each incremental

9   position; and

10   calculating the width of the read element and the width of the write

11   element based on the amplitude data.

1

1   6. The method of Claim 1 wherein the step of determining a track

2   pitch based on the measured width of the read element and the measured width

3   of the write element is accomplished by:

4   establishing a nominal pair of width values;

5   using a nominal track pitch when the measured widths are within

6   corresponding +/- limits of the nominal pair of width values;

7   using a narrower than nominal track pitch when the measured

8   width of the write elements is narrower than the - limit of the

9   nominal width value of the write element; and

10   using a wider than nominal track pitch when the measured width of

11   the write element is wider than the + limit of the nominal

12   width value of the write element.

1

1   7. A disk drive comprising a head disk assembly (HDA) containing

2   at least one magnetic disk that includes a magnetic surface and a head stack

3   assembly (HSA) that includes a transducer head with a write element for writing

4   data to the magnetic disk and a read element for reading data from the magnetic

5   disk, the disk drive produced using the steps of:

6   measuring a width of the read element while the HDA is in a servo

7   track writer;

8   measuring a width of the write element while the HDA is in a servo

9   track writer;

10   determining a track pitch based on the measured width of the read

11   element and the measured width of the write element; and

12   writing servo tracks onto the magnetic disk at the determined track

13   pitch.

1   8. The disk drive of Claim 7 where the transducer head with a write

2   element for writing data to the magnetic disk and a read element for reading data

3   from the magnetic disk is a magneto-resistive transducer head.

1   9. The disk drive of Claim 7 wherein the HDA contains a plurality of

2   magnetic surfaces and corresponding transducer heads, wherein the measuring

3   steps are performed for each transducer head to establish a collection of width

4   measurements; and wherein the determining steps is accomplished based on

5   the collection of width measurements.

1   10. The disk drive of Claim 7 wherein the steps of measuring the

2   width of the read element and the width of the write element are accomplished

3   by:

4   writing a calibration track with the write element;

5   positioning the read element to a first side of the calibration track;

6   gathering amplitude data by incrementally moving the read element

7   from the first side of the calibration track to a second

8   opposite side while reading data at each incremental

9   position; and

10   calculating the width of the read element and the width of the write

11   element based on the amplitude data.

1

1   11. A method of measuring a width of a read element and a width

2   of a write element contained within a disk drive formed from a head disk

3   assembly (HDA) containing at least one magnetic disk with a magnetic surface

4   and a head stack assembly (HSA) that includes a transducer head formed from

5   the read and write elements, the method comprising the steps of

6   writing a calibration track with the write element;

7   positioning the read element to a first side of the calibration track;

8   gathering amplitude data by incrementally moving the read element

9   from the first side of the calibration track to a second

10   opposite side while reading data at each incremental

11   position; and

12   calculating the width of the read element and the width of the write

13   element based on the amplitude data.

14